

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for monitoring surface parameters comprising collecting spectral radiance measurements in two spectral bands;

applying ratioing techniques to the spectral radiance measurements to remove the effect of sun elevation and cloud cover variations and obtain a ratio of spectral radiance measurements wherein the ratio of spectral radiance measurements comprise a direct correlation to spectral reflectance values;

~~calibrating the resulting values to known values; and~~ monitoring the surface parameters of interest; and

correlating the ratio of spectral measurements to the surface parameters of interest.

2. (Original) The method according to claim 1 wherein the surface parameters are selected from the group consisting of vegetation cover, vegetation density, and combinations thereof.

3. (Original) The method according to claim 1 wherein the surface parameters are selected from the group consisting of suspended sediment concentration in water, turbidity in water, and combinations thereof.

4. (Original) The method according to claim 1 wherein the spectral bands measurements for the two immediate applications are visible red and near-infrared.

5. (Original) The method according to claim 1 wherein the ratioing techniques comprising the following formula:

$$\text{Radiance (red)} = \text{Reflectance (red)} \times E_o(\text{red}) / \text{Radiance (nir)} = \text{Reflectance (nir)} \times E_o(\text{nir})$$

wherein E_0 is the total solar irradiance in a given spectral band is used in place of spectral reflectances.

6. (Original) The method according to claim 1 wherein the spectral measurements are collected at time intervals ranging from about 15 minutes to two weeks during daylight.

7. (Currently Amended) A method for monitoring surface parameters comprising collecting a plurality of spectral radiance measurements in two spectral bands using a plurality of one to several radiometers covering different portions of the spectrum;

applying ratioing techniques to the spectral radiance measurements to remove the effect of sun elevation and cloud cover variations and obtain a ratio of spectral radiance measurements wherein the ratio of spectral radiance measurements comprise a direct correlation to spectral reflectance values;

~~calibrating the resulting values to known values; and~~ monitoring the surface parameters of interest; and

correlating the ratio of spectral radiance measurements to the surface parameters of interest.

8. (Original) The method according to claim 7 wherein the surface parameters are selected from the group consisting of vegetation cover, vegetation density, and combinations thereof.

9. (Original) The method according to claim 7 wherein the surface parameters are selected from the group consisting of suspended sediment concentration in water, turbidity in water, and combinations thereof.

10. (Original) The method according to claim 7 wherein the spectral bands measurements for the two immediate applications are visible red and near-infrared.

11. (Original) The method according to claim 7 wherein the ratioing techniques comprising the following formula:

$$\text{Radiance (red)} = \text{Reflectance (red)} \times E_o (\text{red}) / \text{Radiance (nir)} = \text{Reflectance (nir)} \times E_o (\text{nir})$$

wherein E_o is the total solar irradiance in a given spectral band is used in place of spectral reflectances.

12. (Original) The method according to claim 7 wherein the spectral measurments are collected at time intervals ranging from about 15 minutes to two weeks during daylight.